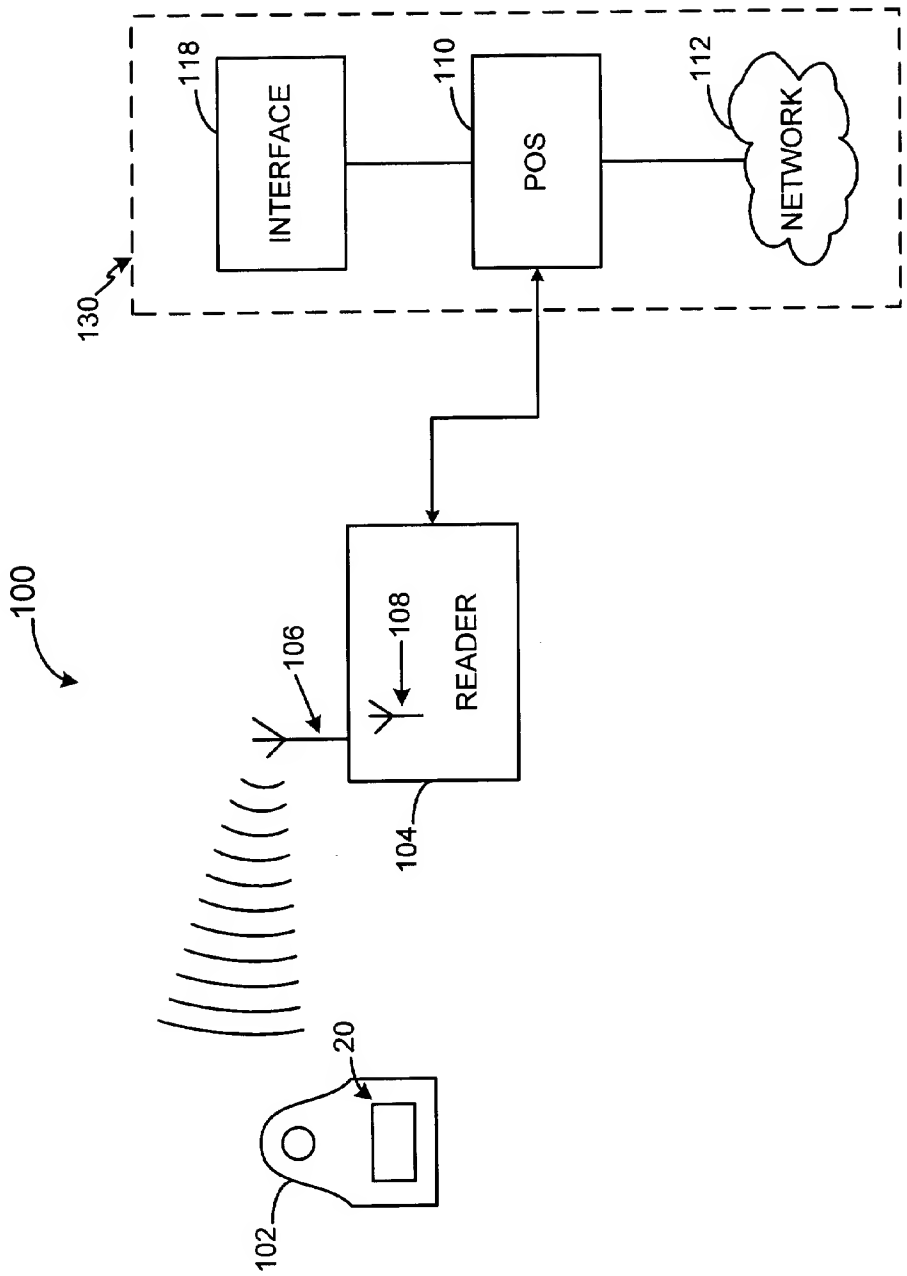
100
130
118
INTERFACE
110
POS
112
NETWORK
READER
108
106
104
102
20

FIGURE 1

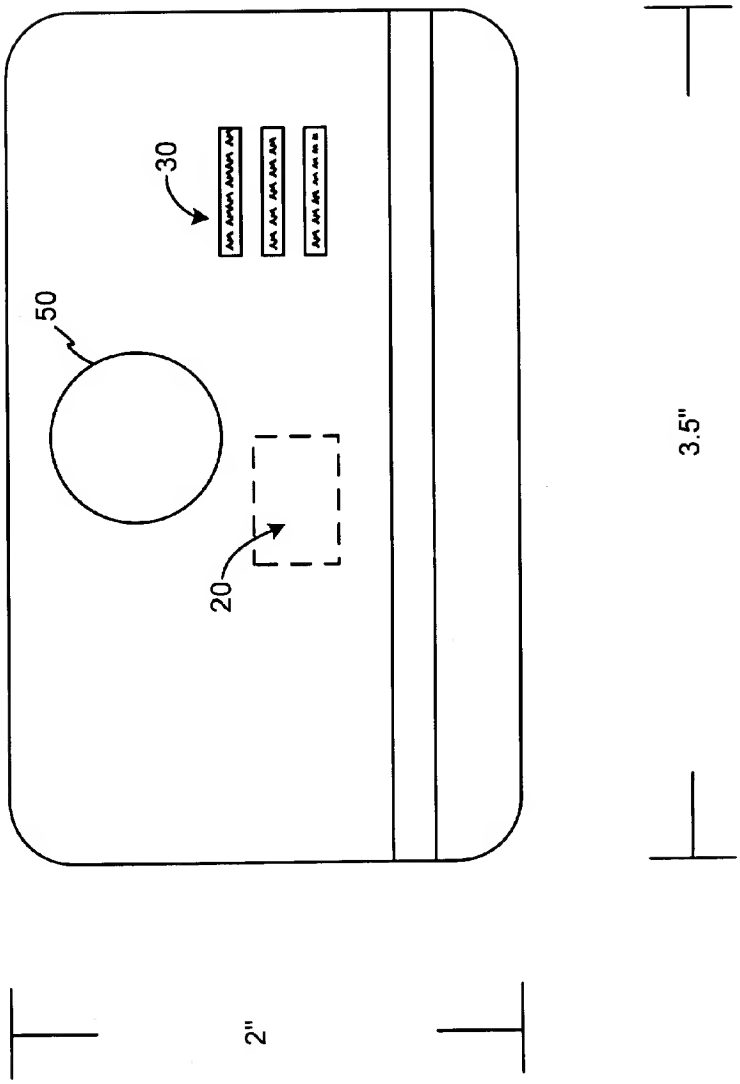

FIGURE 2

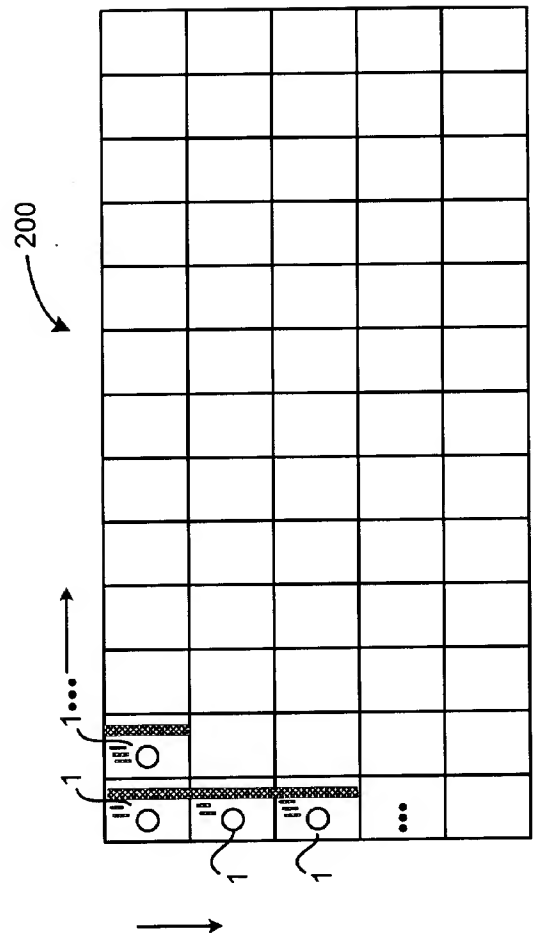

FIGURE 3

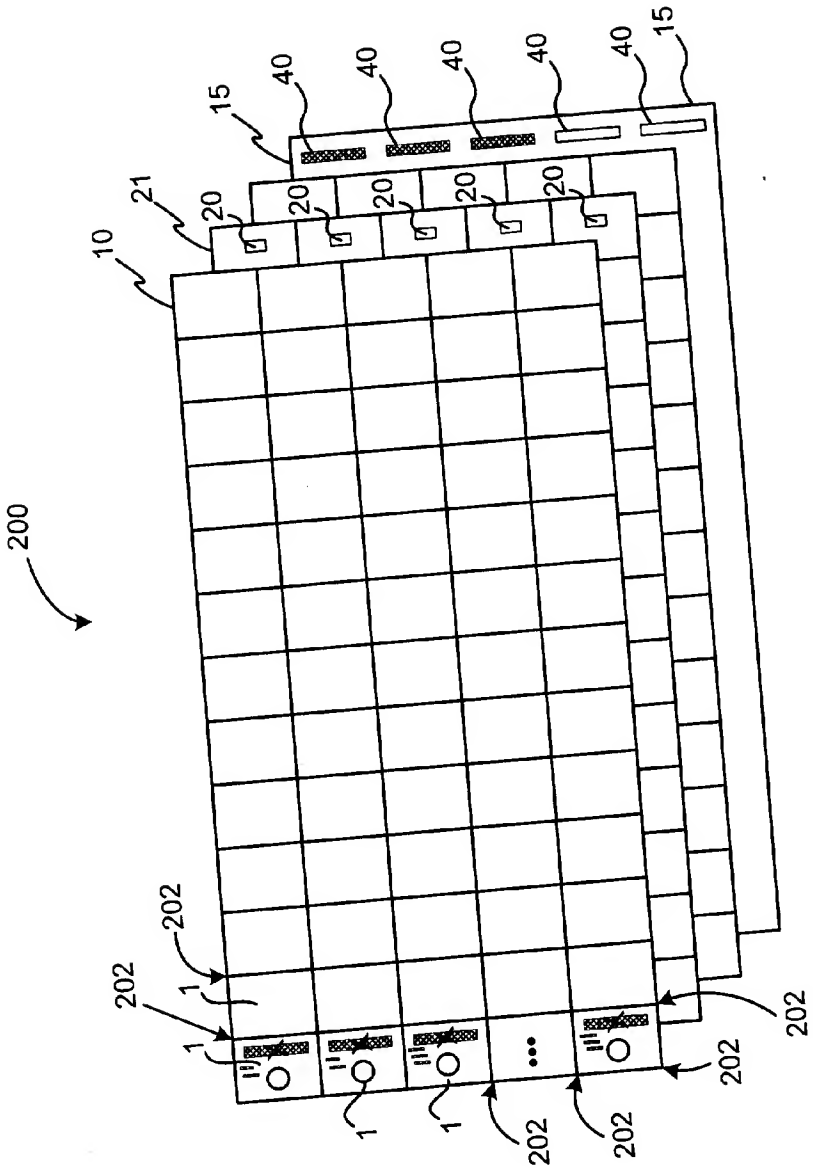

FIGURE 4

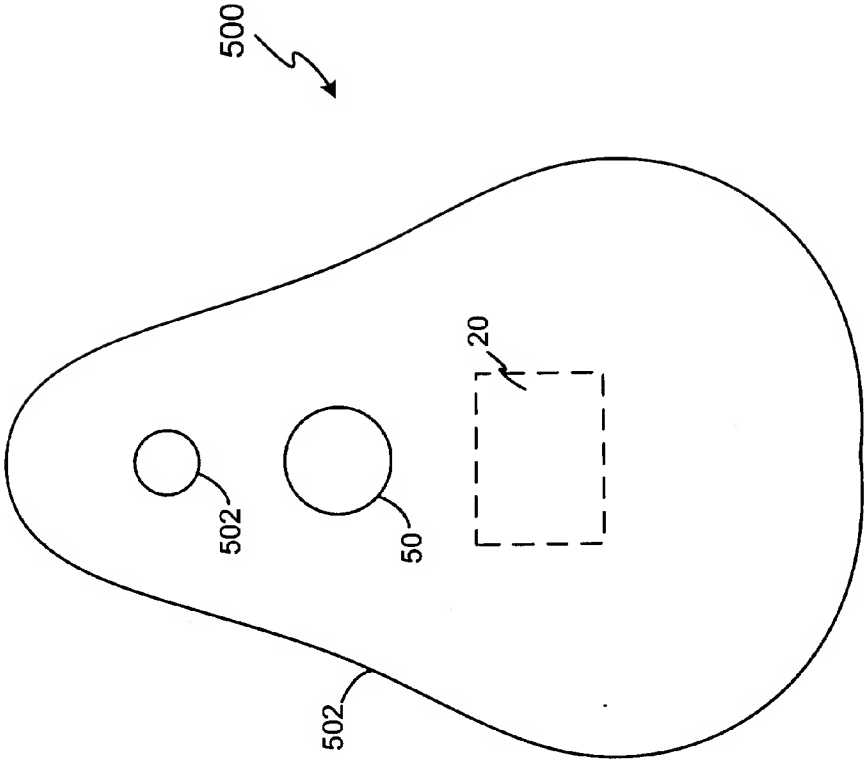

FIGURE 5

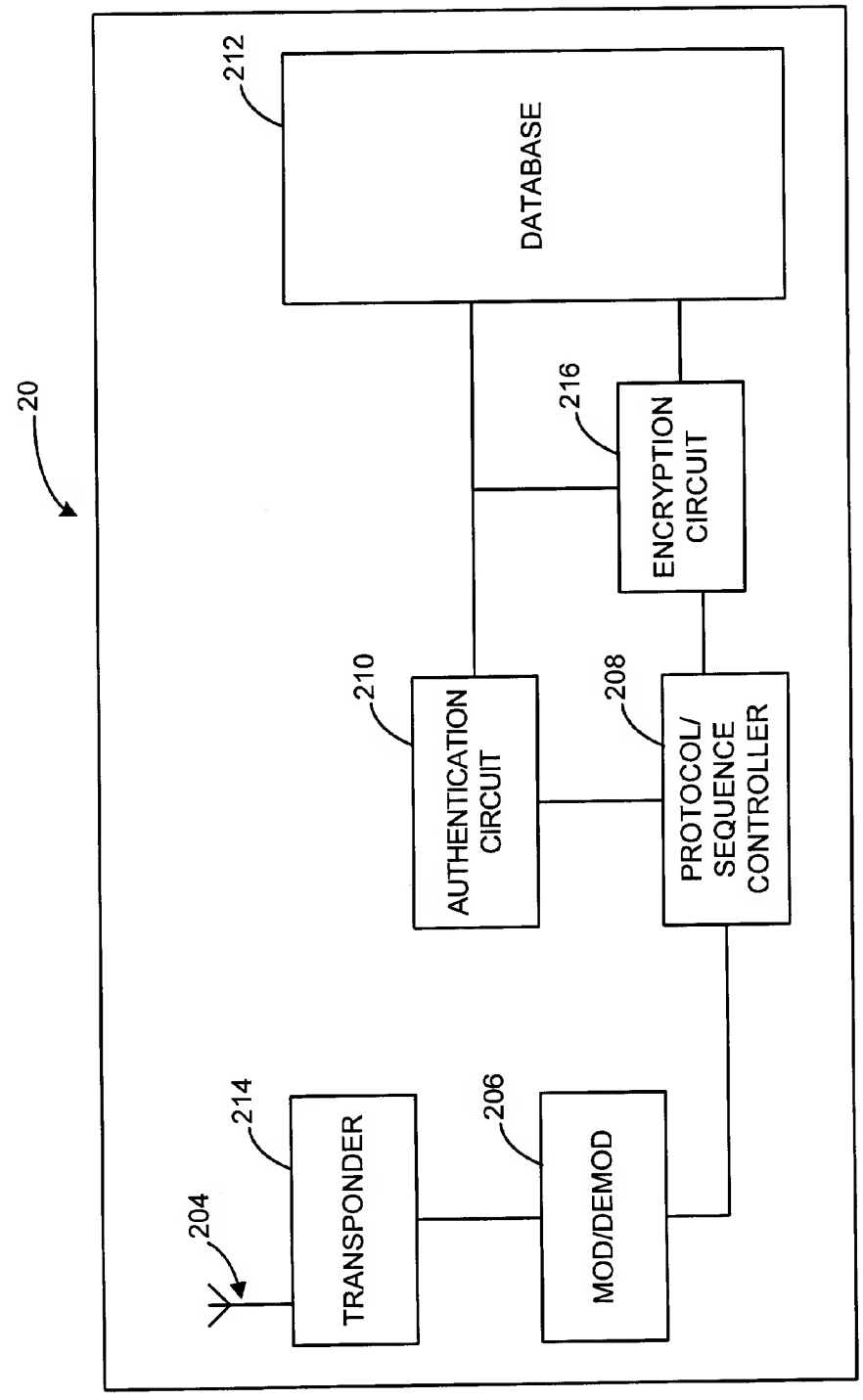
20
212
DATABASE
216
ENCRYPTION CIRCUIT
210
AUTHENTICATION CIRCUIT
208
PROTOCOL/ SEQUENCE CONTROLLER
214
TRANSPONDER
206
MOD/DEMOD
204

FIGURE 6

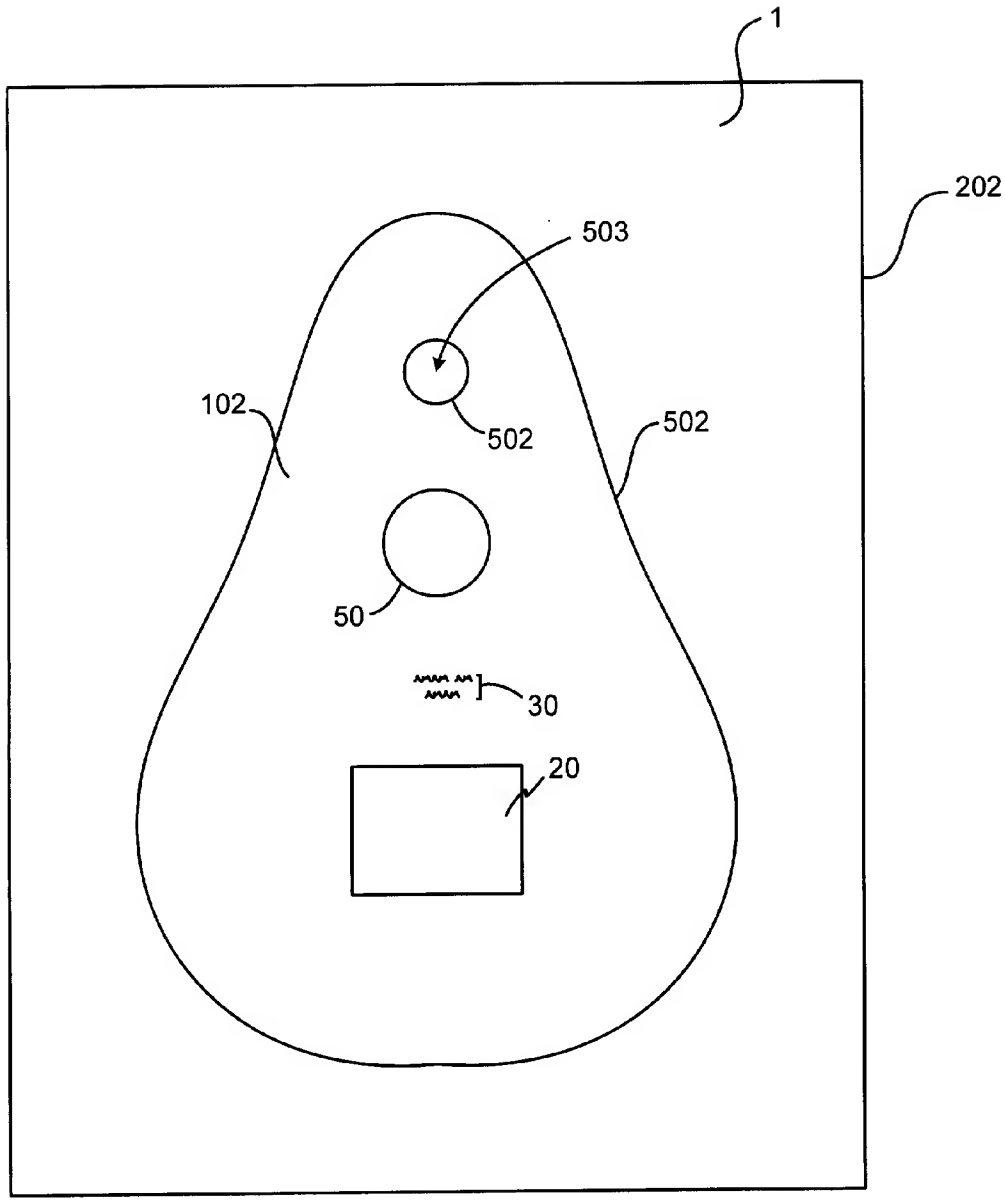

FIGURE 7

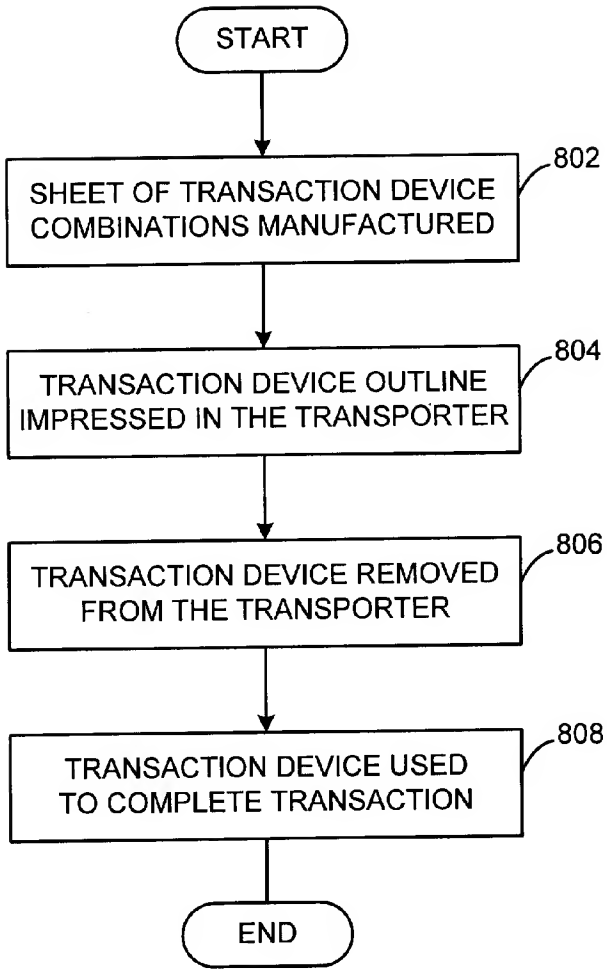
START
SHEET OF TRANSACTION DEVICE COMBINATIONS MANUFACTURED
802
TRANSACTION DEVICE OUTLINE IMPRESSED IN THE TRANSPORTER
804
TRANSACTION DEVICE REMOVED FROM THE TRANSPORTER
806
TRANSACTION DEVICE USED TO COMPLETE TRANSACTION
808
END

FIGURE 8

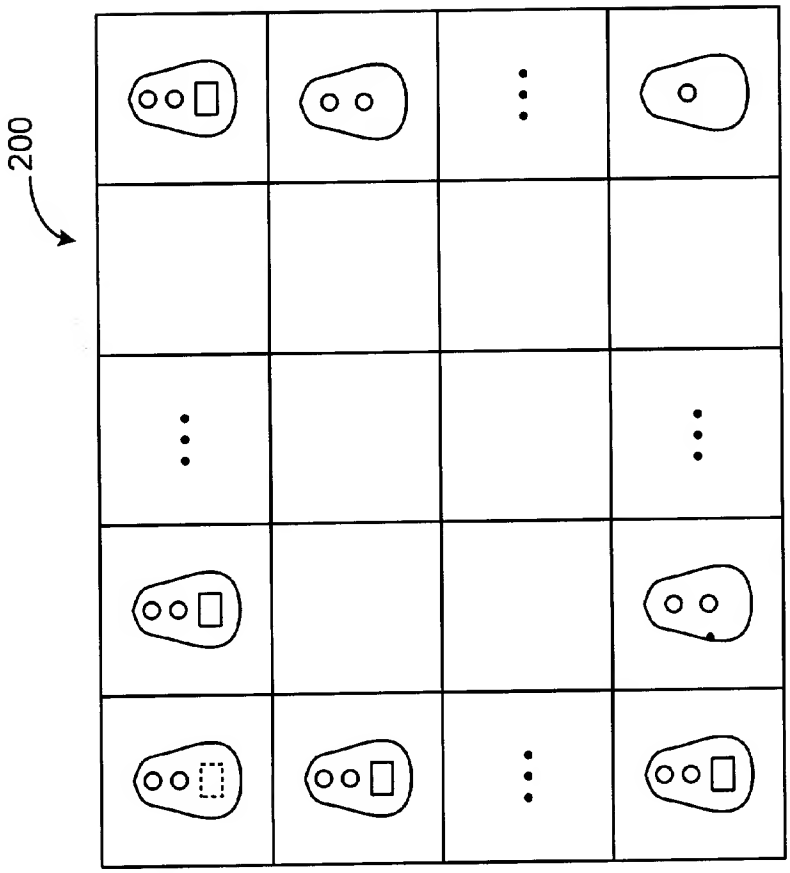

FIGURE 9

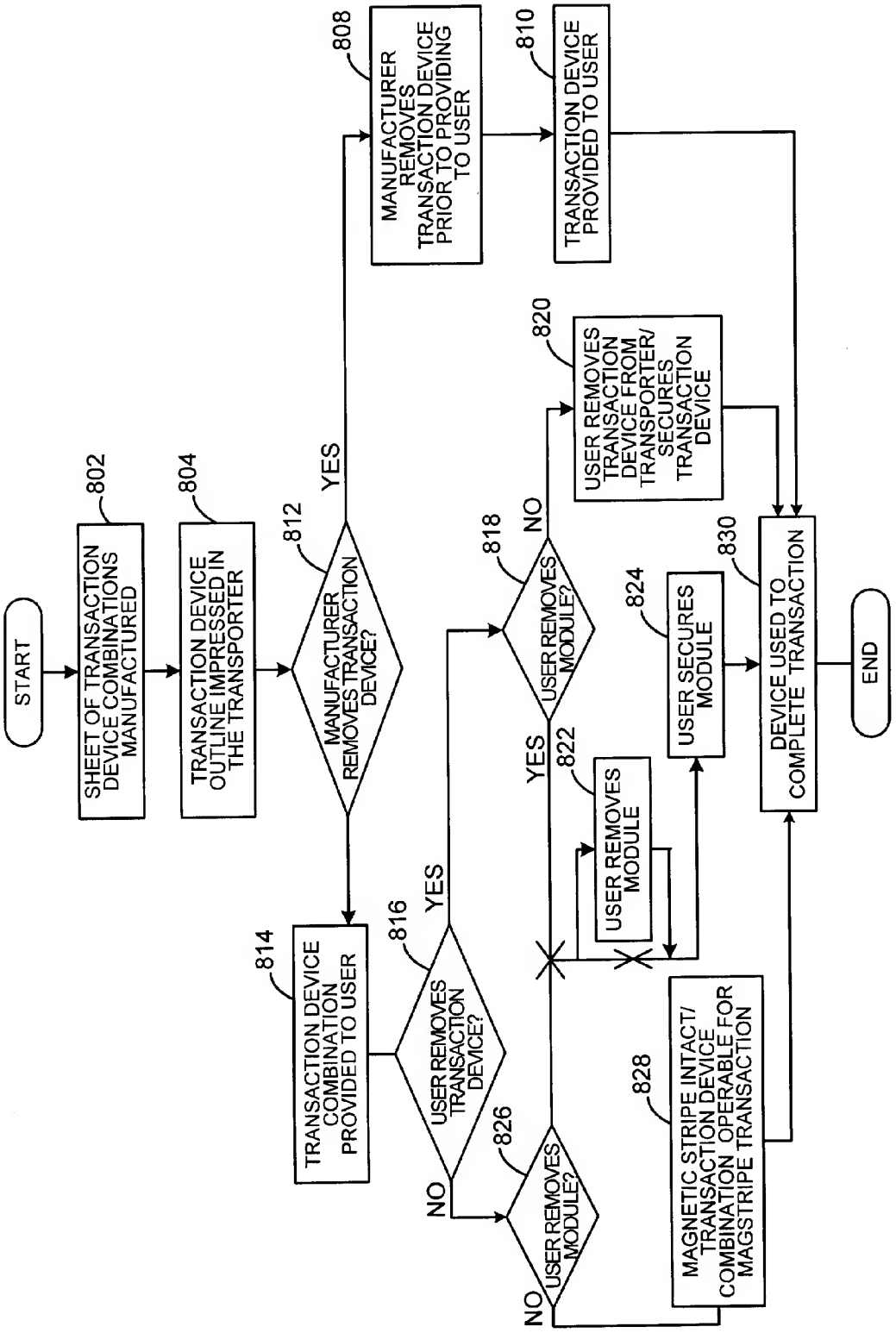
START
SHEET OF TRANSACTION DEVICE COMBINATIONS MANUFACTURED
802
TRANSACTION DEVICE OUTLINE IMPRESSED IN THE TRANSPORTER
804
MANUFACTURER REMOVES TRANSACTION DEVICE?
812
YES
808
MANUFACTURER REMOVES TRANSACTION DEVICE PRIOR TO PROVIDING TO USER
810
TRANSACTION DEVICE PROVIDED TO USER
TRANSACTION DEVICE COMBINATION PROVIDED TO USER
814
USER REMOVES TRANSACTION DEVICE?
816
YES
NO
USER REMOVES MODULE?
818
NO
820
USER REMOVES TRANSACTION DEVICE FROM TRANSPORTER/ SECURES TRANSACTION DEVICE
YES
USER REMOVES MODULE
822
USER SECURES MODULE
824
USER REMOVES MODULE?
826
NO
MAGNETIC STRIPE INTACT/ TRANSACTION DEVICE COMBINATION OPERABLE FOR MAGSTRIPE TRANSACTION
828
DEVICE USED TO COMPLETE TRANSACTION
830
END

FIGURE 10

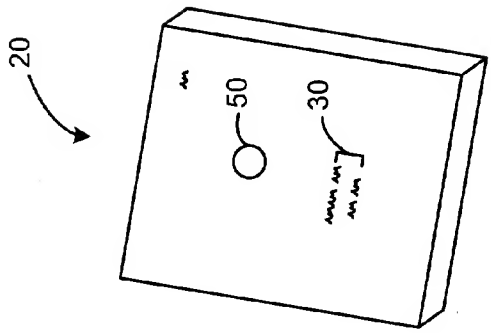

FIGURE 12

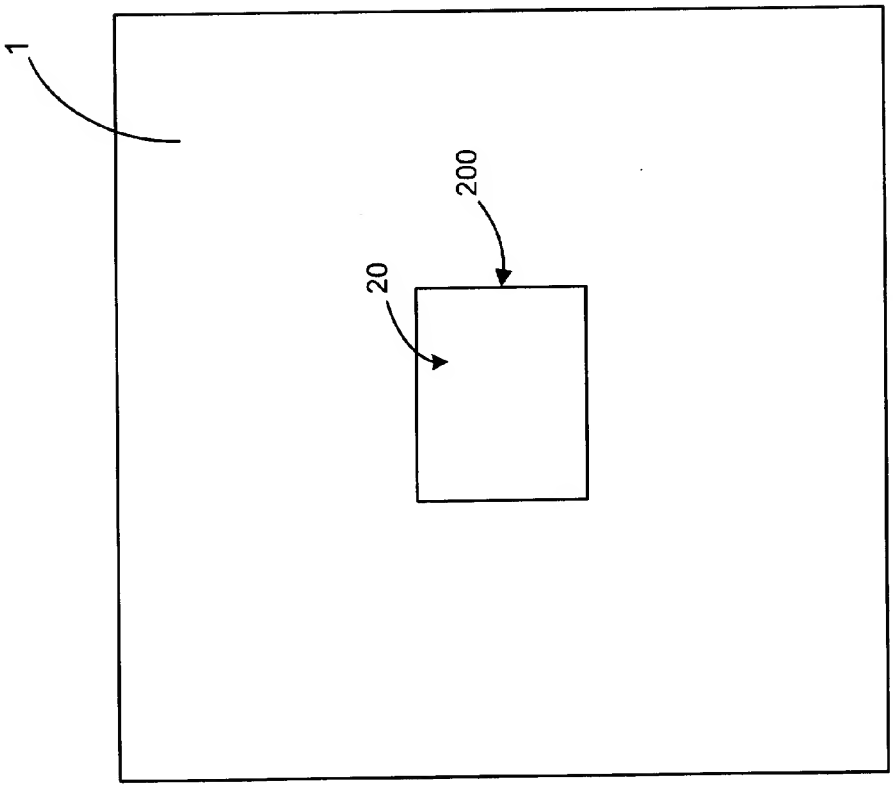

FIGURE 11

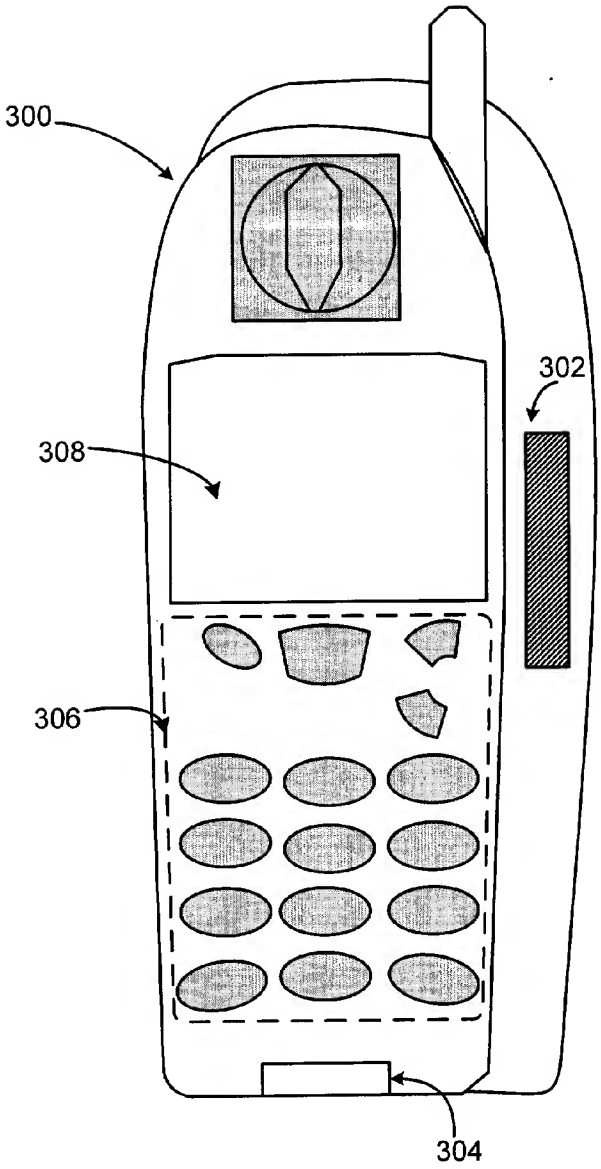

FIGURE 13

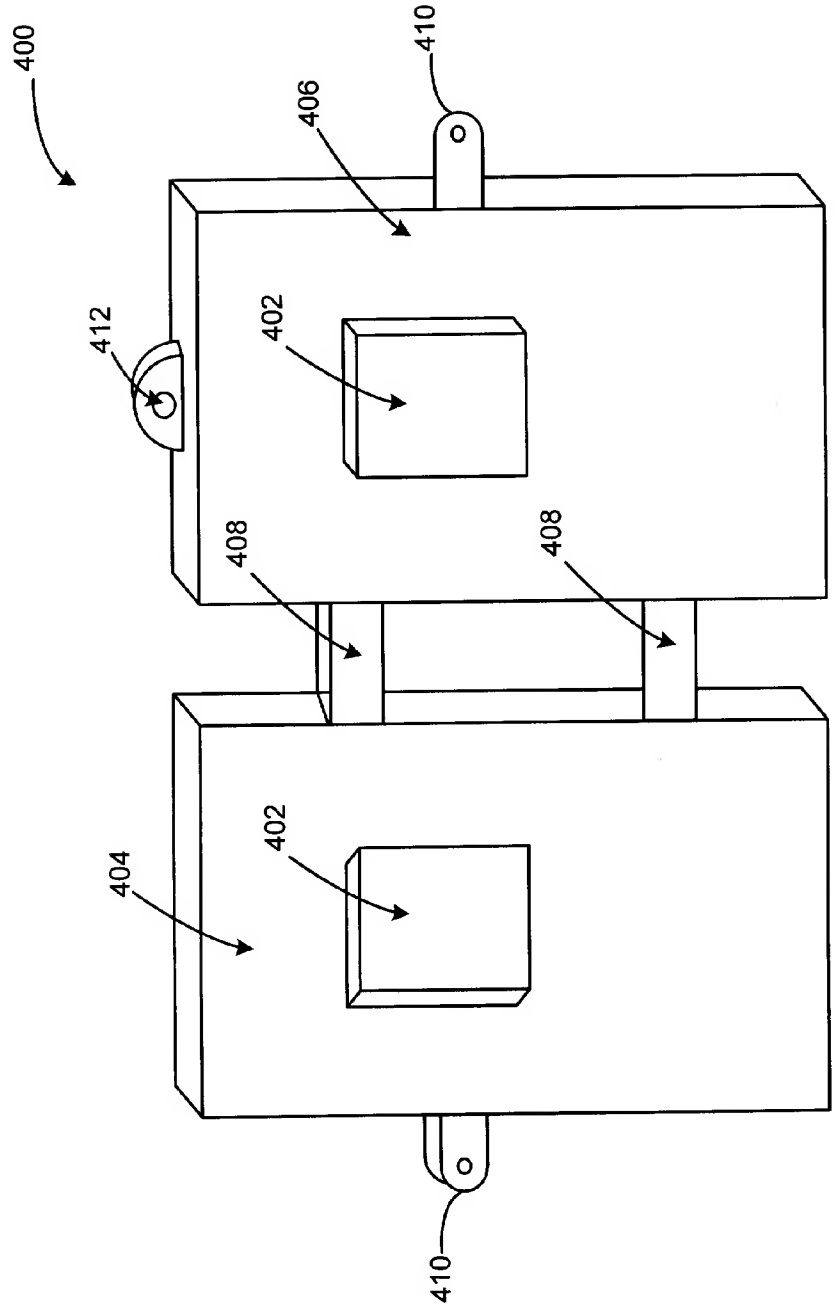

FIGURE 14

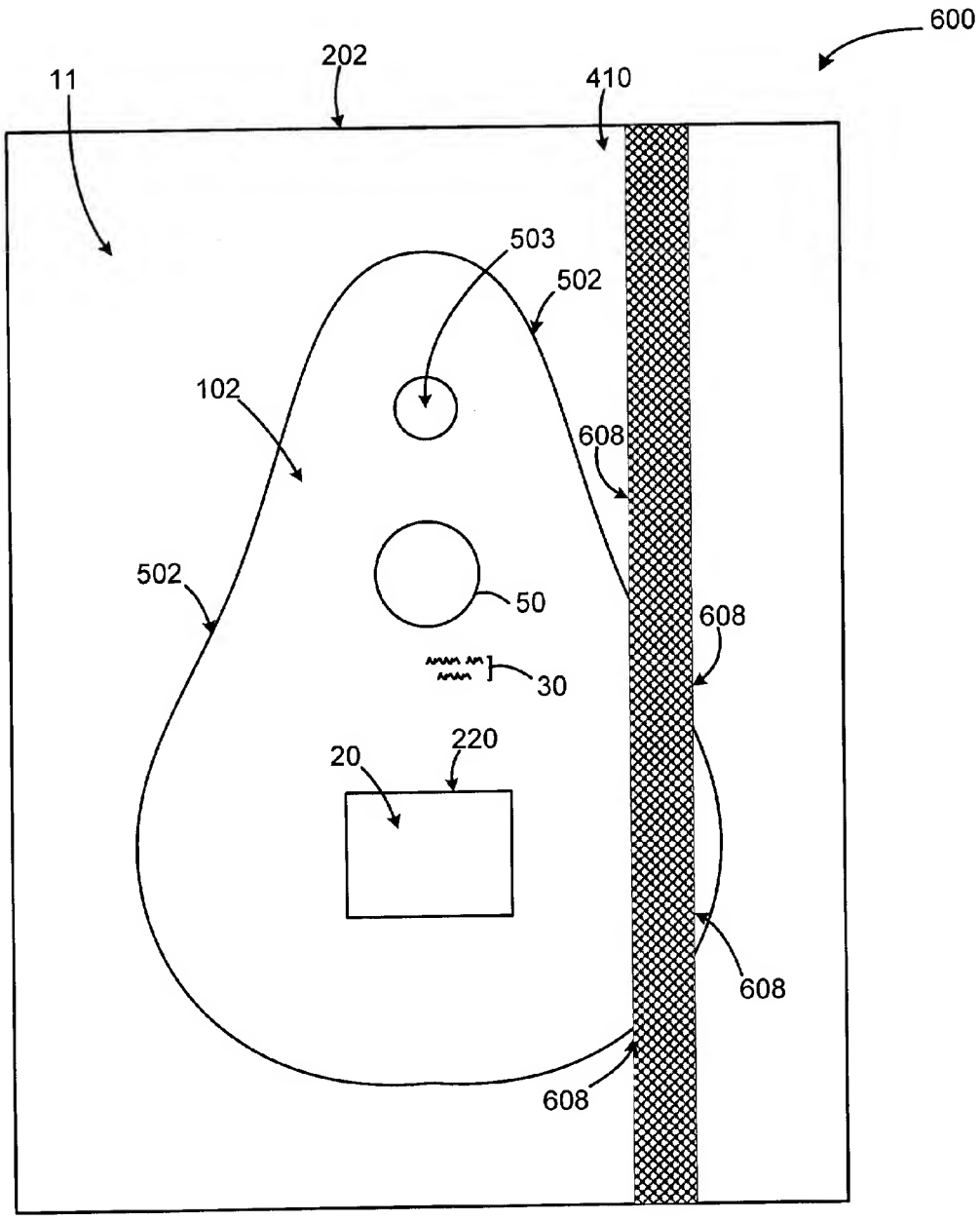

FIGURE 15

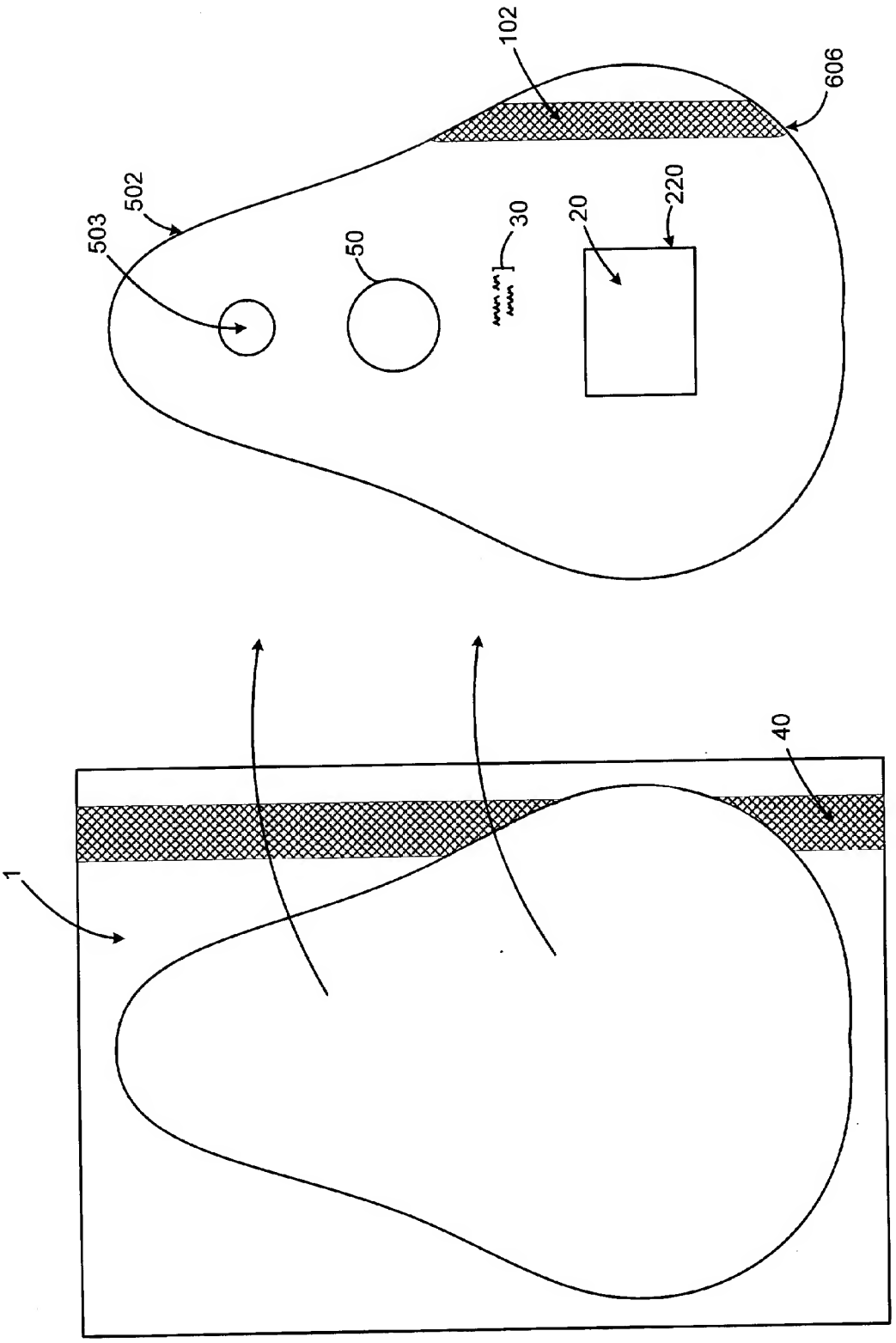

FIGURE 16

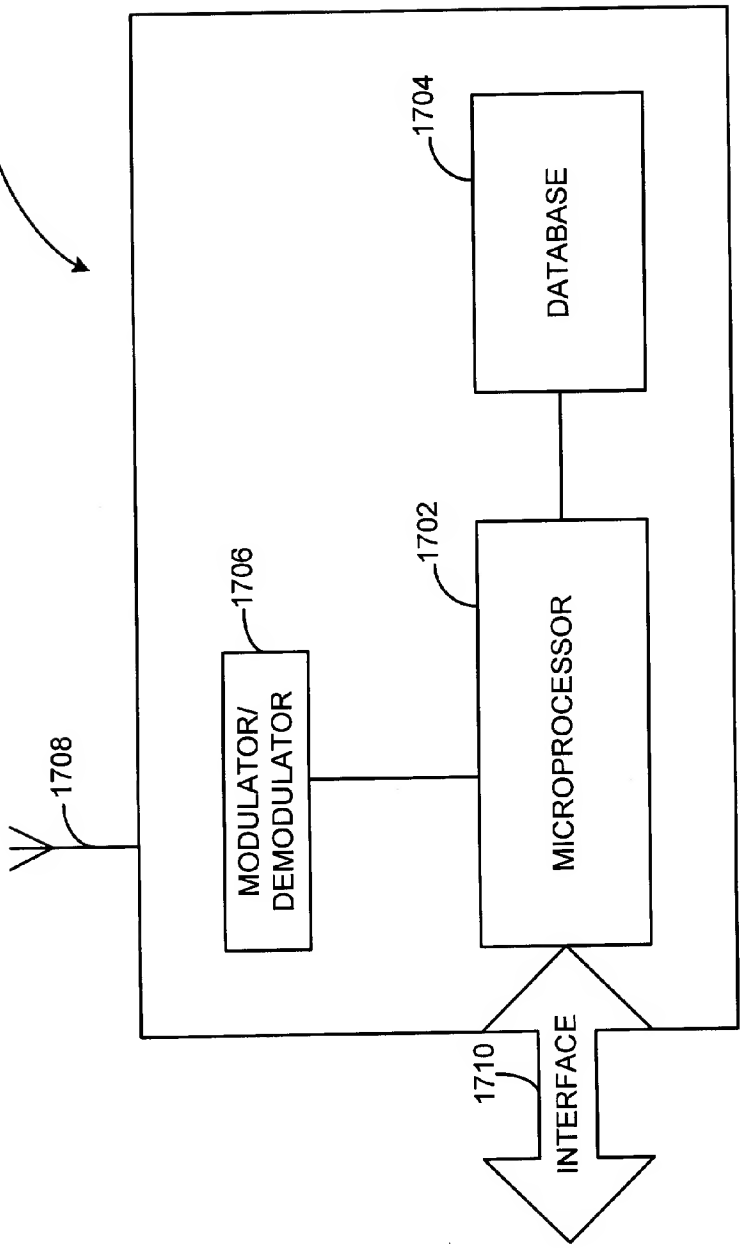
300
1704
DATABASE
1702
MICROPROCESSOR
1706
MODULATOR/
DEMODULATOR
1708
1710
INTERFACE

FIGURE 17

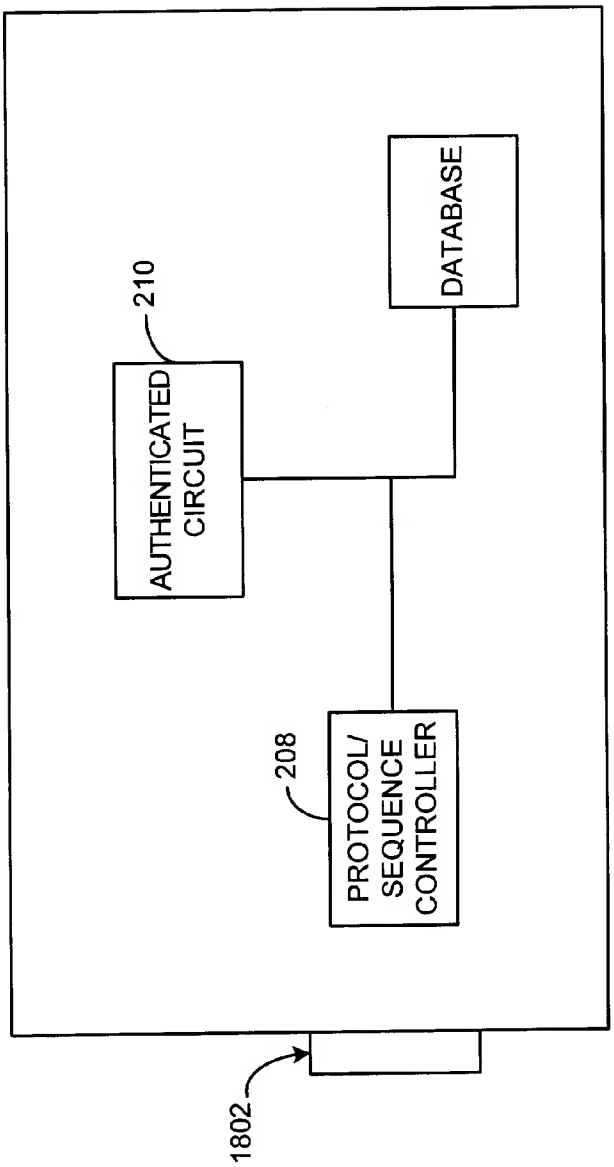
1802
208
PROTOCOL/
SEQUENCE
CONTROLLER
210
AUTHENTICATED
CIRCUIT
DATABASE

FIGURE 18

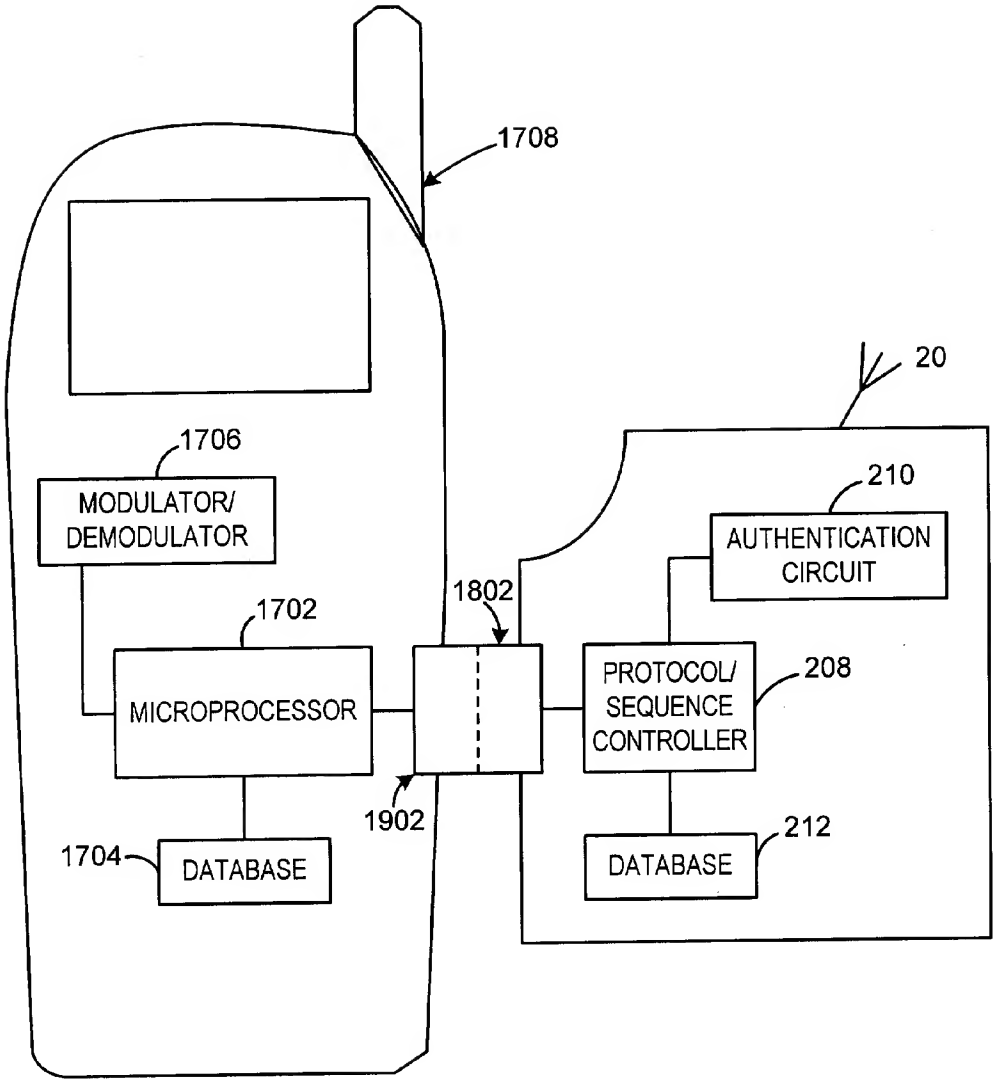
1708
20
1706
MODULATOR/
DEMODULATOR
210
AUTHENTICATION
CIRCUIT
1802
1702
MICROPROCESSOR
PROTOCOL/
SEQUENCE
CONTROLLER
208
1902
1704
DATABASE
212
DATABASE

FIGURE 19

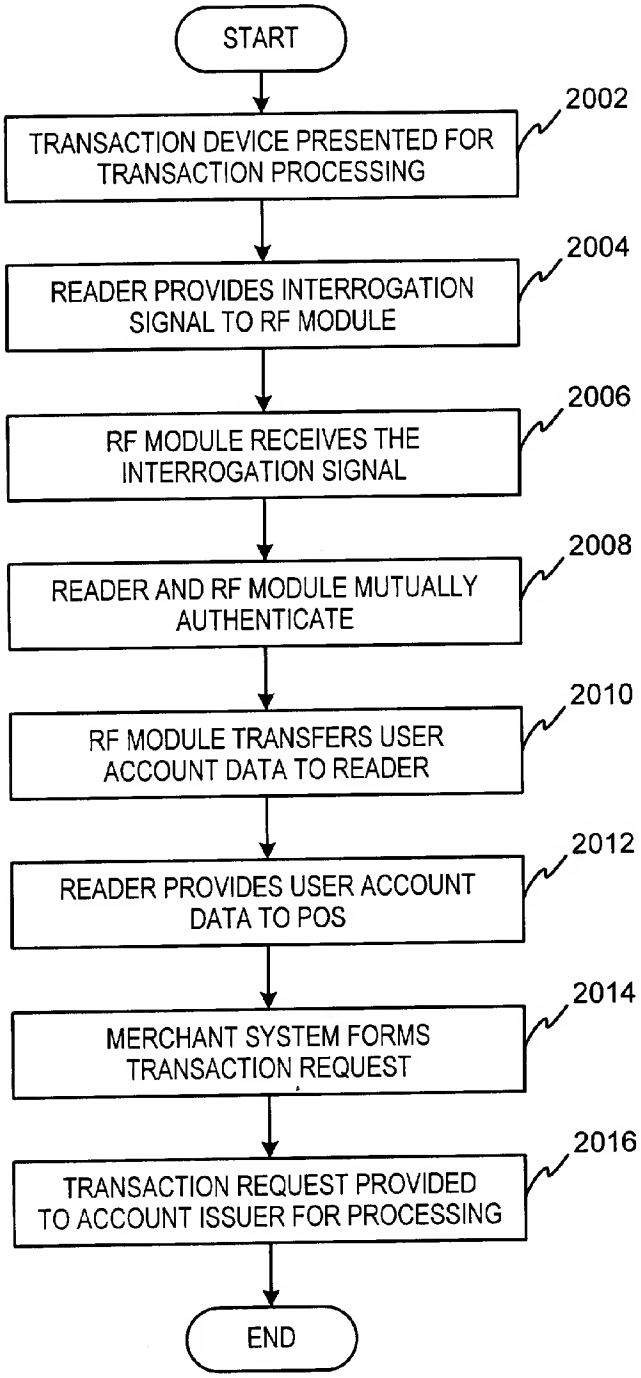
START
TRANSACTION DEVICE PRESENTED FOR TRANSACTION PROCESSING
2002
READER PROVIDES INTERROGATION SIGNAL TO RF MODULE
2004
RF MODULE RECEIVES THE INTERROGATION SIGNAL
2006
READER AND RF MODULE MUTUALLY AUTHENTICATE
2008
RF MODULE TRANSFERS USER ACCOUNT DATA TO READER
2010
READER PROVIDES USER ACCOUNT DATA TO POS
2012
MERCHANT SYSTEM FORMS TRANSACTION REQUEST
2014
TRANSACTION REQUEST PROVIDED TO ACCOUNT ISSUER FOR PROCESSING
2016
END

FIGURE 20

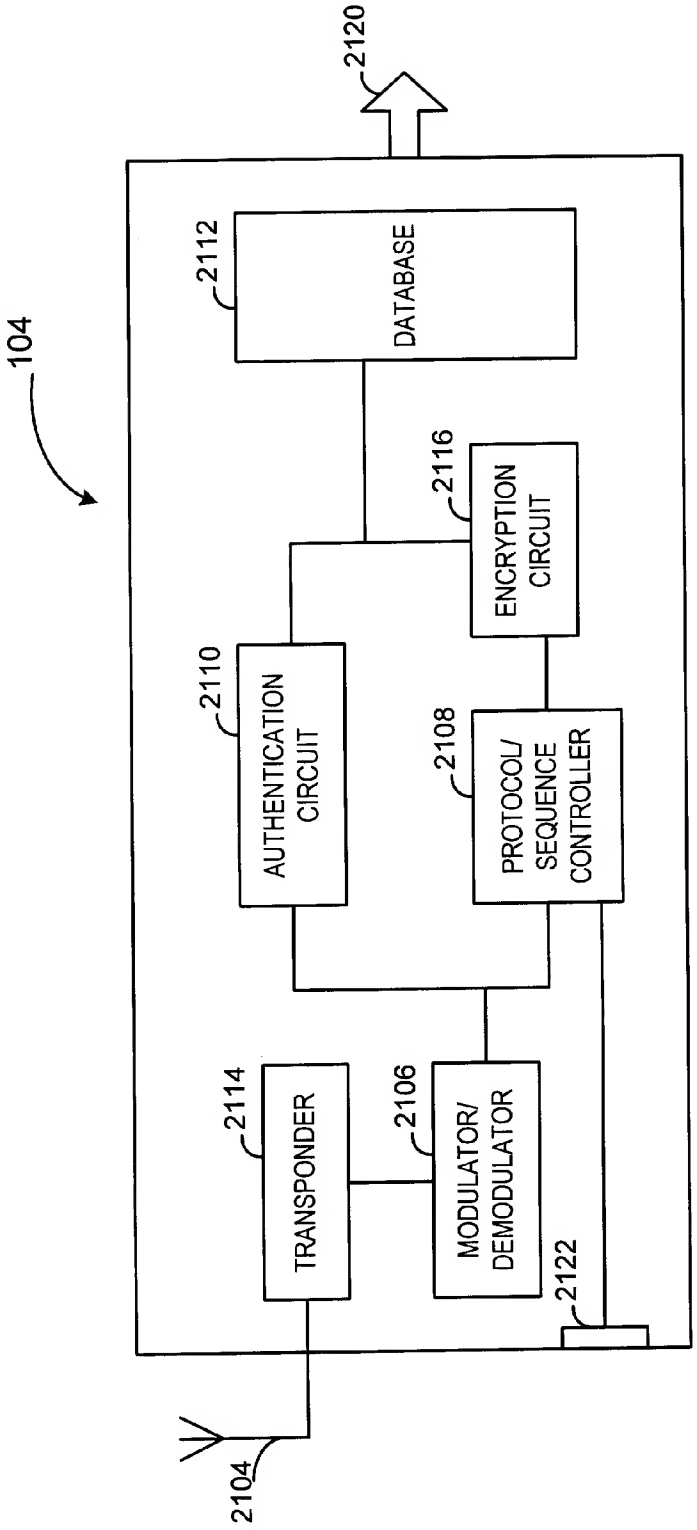
104
2120
2112
DATABASE
2116
ENCRYPTION CIRCUIT
2110
AUTHENTICATION CIRCUIT
2108
PROTOCOL/ SEQUENCE CONTROLLER
2114
TRANSPONDER
2106
MODULATOR/ DEMODULATOR
2122
2104

FIGURE 21

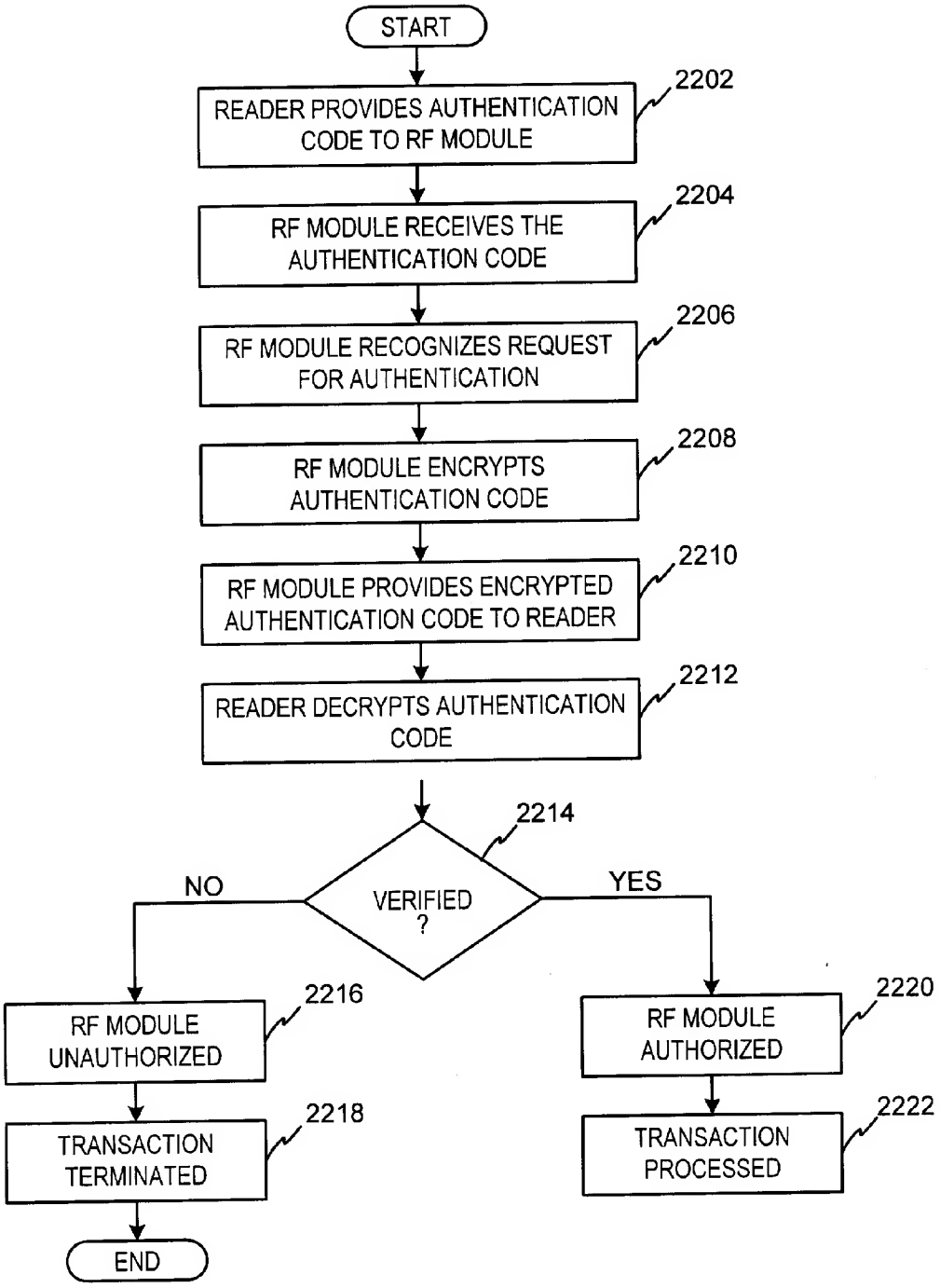
START
READER PROVIDES AUTHENTICATION CODE TO RF MODULE
2202
RF MODULE RECEIVES THE AUTHENTICATION CODE
2204
RF MODULE RECOGNIZES REQUEST FOR AUTHENTICATION
2206
RF MODULE ENCRYPTS AUTHENTICATION CODE
2208
RF MODULE PROVIDES ENCRYPTED AUTHENTICATION CODE TO READER
2210
READER DECRYPTS AUTHENTICATION CODE
2212
VERIFIED ?
2214
NO
YES
RF MODULE UNAUTHORIZED
2216
TRANSACTION TERMINATED
2218
END
RF MODULE AUTHORIZED
2220
TRANSACTION PROCESSED
2222

FIGURE 22

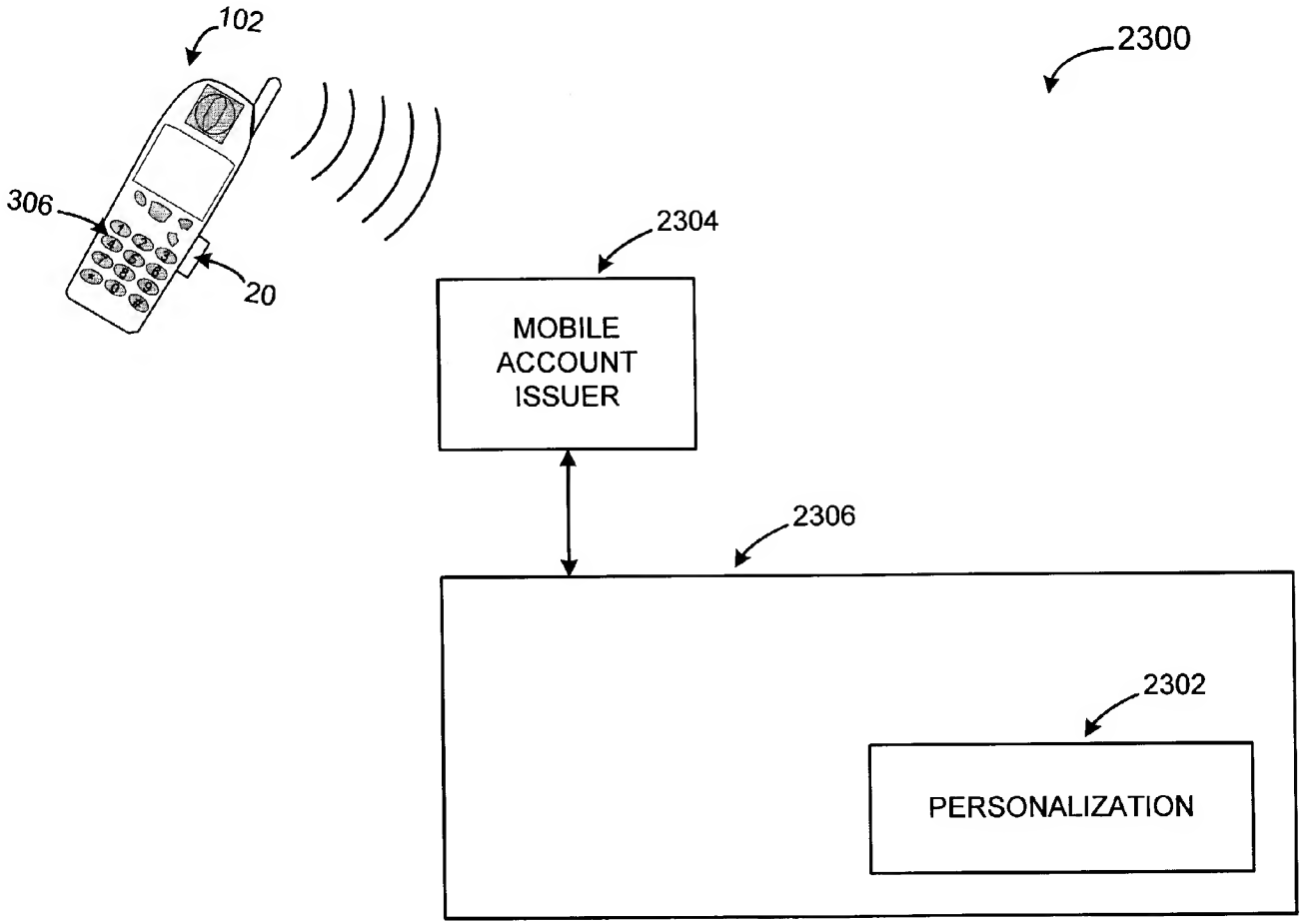
102
2300
306
2304
20
MOBILE
ACCOUNT
ISSUER
2306
2302
PERSONALIZATION

FIGURE 23

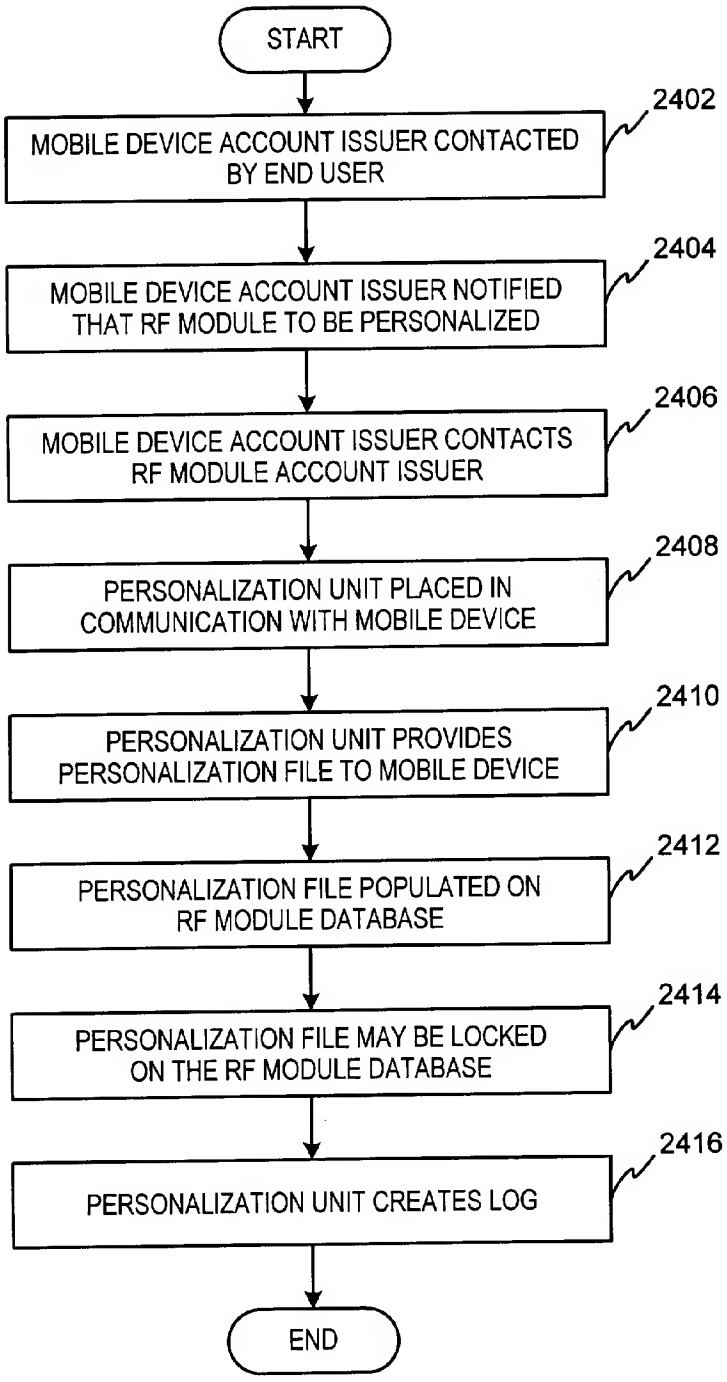
START
MOBILE DEVICE ACCOUNT ISSUER CONTACTED BY END USER
2402
MOBILE DEVICE ACCOUNT ISSUER NOTIFIED THAT RF MODULE TO BE PERSONALIZED
2404
MOBILE DEVICE ACCOUNT ISSUER CONTACTS RF MODULE ACCOUNT ISSUER
2406
PERSONALIZATION UNIT PLACED IN COMMUNICATION WITH MOBILE DEVICE
2408
PERSONALIZATION UNIT PROVIDES PERSONALIZATION FILE TO MOBILE DEVICE
2410
PERSONALIZATION FILE POPULATED ON RF MODULE DATABASE
2412
PERSONALIZATION FILE MAY BE LOCKED ON THE RF MODULE DATABASE
2414
PERSONALIZATION UNIT CREATES LOG
2416
END

FIGURE 24

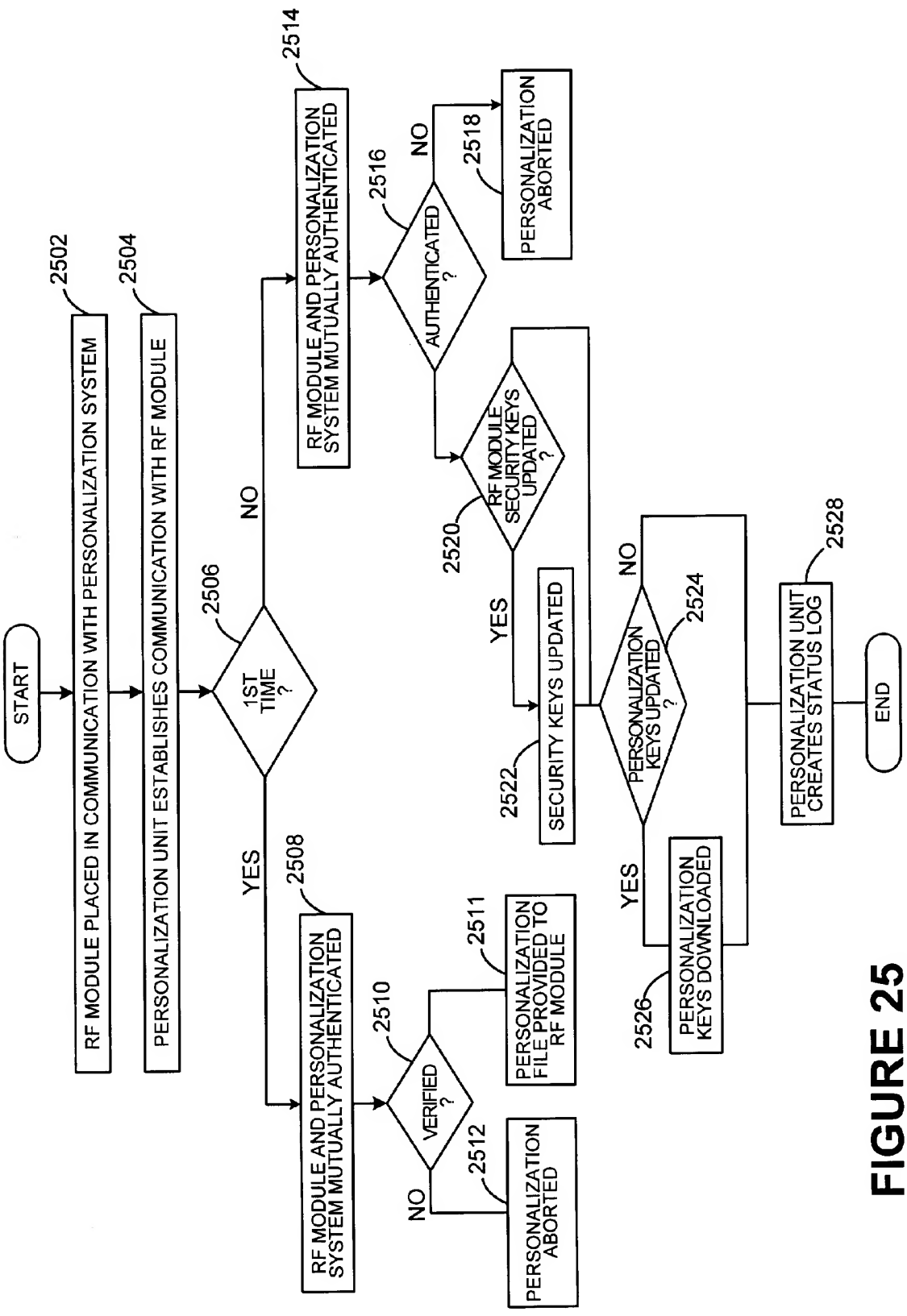
START
RF MODULE PLACED IN COMMUNICATION WITH PERSONALIZATION SYSTEM
2502
PERSONALIZATION UNIT ESTABLISHES COMMUNICATION WITH RF MODULE
2504
1ST TIME ?
2506
YES
NO
RF MODULE AND PERSONALIZATION SYSTEM MUTUALLY AUTHENTICATED
2508
VERIFIED ?
2510
NO
YES
PERSONALIZATION FILE PROVIDED TO RF MODULE
2511
PERSONALIZATION ABORTED
2512
RF MODULE AND PERSONALIZATION SYSTEM MUTUALLY AUTHENTICATED
2514
AUTHENTICATED ?
2516
NO
YES
PERSONALIZATION ABORTED
2518
RF MODULE SECURITY KEYS UPDATED ?
2520
NO
YES
SECURITY KEYS UPDATED
2522
PERSONALIZATION KEYS UPDATED ?
2524
NO
YES
PERSONALIZATION KEYS DOWNLOADED
2526
PERSONALIZATION UNIT CREATES STATUS LOG
2528
END

FIGURE 25